Megan Williams
01/10/02 02:26 PM

To: "Scott Fry" <fry@btigate.com>
cc: Kevin Golden
Subject: Re: Questions regarding PSD in North Dakota

Scott: Below are some answers to your questions. Since we use WordPerfect here I decided to just send the answers in an email (instead of an attachment)...I've put my answers in bold (hopefully that will show up on your email message). If you have trouble reading them, let me know. Also, feel free to call me or email me back if you need more clarification on any of these. I've referenced some of our regulations and I'm not sure if you have access to those. There is an online version of the CFR at http://www.access.gpo.gov/ecfr/ if you want to look up some of the applicable PSD sections (e.g, 40 CFR 51.166). Also, another good PSD resource is EPA's draft New Source Review Workshop Manual. You can access this on the web at http://www.epa.gov/ttnnsr01/gen/wkshpman.pdf.

Megan

1) What exactly is being determined with PSD in North Dakota?

The State and EPA are determining how much of the PSD increments for SO2 have been consumed in 4 Class I areas (Teddy Roosevelt Nat'l Park, Lostwood Wilderness Area, Medicine Lakes Wilderness Area and the Fort Peck Indian Reservation).

A little background...
To prevent significant deterioration (PSD) of air quality in clean air areas (areas currently meeting all of the national ambient air quality standards), the Clean Air Act allows only a certain amount of increase in ambient air concentration over the existing baseline concentration. These allowable increases are the "PSD increments". The Clean Air Act specifies 3 different classes of air quality protection (Class I, II and III) representing different levels of allowed deterioration of air quality. In Class I areas, the most stringent PSD increments apply. The Class I PSD increments for SO2 in Class I areas (see section 163(b) of the Clean Air Act) are:

annual arithmetic mean - 2 micrograms per m3
24-hr average - 5 micrograms per m3
3-hr average - 25 micrograms per m3

For the 24-hr and 3-hr increments, the Clean Air Act allows the increment to be exceeded one time per year.

Dispersion modeling is used to determine what the change in concentration has been - in this case in these 4 particular Class I areas - from the time that the PSD increments applied in these areas (i.e., the baseline date) to now. This change in concentration is then compared to the allowed increases listed above to determine how much of the increment has been consumed.

a. Are we figuring out what the baseline is for the state to determine the increment?

Determining what the baseline is is one step in an increment analysis. To model increment, we need to know what the actual emissions are in the base year and what the actual emissions are today. The difference between those two emission rates is what is modeled to estimate the change in concentration that has occurred (this number is then compared to the allowed increases listed above). Only an air quality model can isolate the contribution of increment consuming emissions; a monitored concentration cannot distinguish between "background" pollutant concentrations (i.e. those that are emitted from sources in operation before the PSD increment was triggered) and those that are increment-consuming (i.e. concentration increases related to sources that have increased emissions after the PSD trigger date). So some type of modeling is always needed to determine increment consumption.

The base year emissions for use in the model are determined from the actual emissions from major sources built before the major source baseline date (which was set for SO2 for all areas on January 6, 1975) and any changes in emissions (not associated with construction) at these sources that occurred before the minor source baseline date for SO2 (which is triggered by the first complete PSD permit application in the area - 12/17/77 for everywhere outside the 'Metropolitan Fargo-Moorhead' area in North Dakota).

i. Shouldn't that have been done already?

The "baseline" is really an inventory of emissions for the base year. Baseline emissions would have already been determined for any modeling done for a new PSD source but only for the area impacted by that source. For this more comprehensive analysis, the impact area is much larger and includes many more sources.

ii. Shouldn't we have baseline figured out already?

Again, "baseline" is really an inventory of emissions in the base year. In the State's 1999 draft modeling analysis, they used allowable emission rates for baseline emissions. EPA policy requires that baseline emissions be based on actual emissions, not allowable emissions. In addition, there is not necessarily agreement on some of the many variables used in calculating representative baseline emissions (e.g., what emission factors to use, what sulfur content numbers to use, etc.). These are the kinds of things the state is hoping to iron out at their public hearing.

b. Are we trying to figure out the remainder of the increment to allow for new

plants to be built?

If, based on this modeling, there is no increment left, no new plant could be built without freeing up some of the increment that's already consumed. And certainly if the increment is more than used up, the State would need to correct any violations before any new plants could consume any more of the increment.

i. If so, shouldn't we already have the baseline figured out and the increment as well?

See answer to a.

c. Or, are we looking at an already existing violation of PSD allowed by previous administrations?

The State's 1999 draft analysis showed existing increment violations. And in fact in the late 1980s and early 1990s seven sources obtained waivers (or variances) from the Federal Land Managers to construct even though there were known increment violations. Under Section 165(d)(2)(C)(iii) of the Clean Air Act, if a facility applying for a PSD permit will cause or contribute to a violation of the increment in a Class I area, that facility can request a variance or waiver from the Class I increment so the permit can be issued if certain criteria are met. Specifically, the facility needs to demonstrate to the Federal Land Manager that it will not adversely impact the air quality related values of the Class I area. If the Federal Land Manager agrees with the source's demonstration of no adverse impact, and certifies as such, the permit may be issued in spite of the violation of the Class I increment. However, in such cases, the State is still required to correct the Class I increment violation, which should be accomplished by requiring other sources to reduce emissions so as to compensate for the new source's impacts. EPA believes that North Dakota should have adopted revisions to its SIP to compensate for the PSD increment violations, regardless of any waiver or variance granted to a specific facility so its permit could be issued. I'll also point out that the waivers granted to the North Dakota sources were only for the 2 ND Class I areas (not the 2 Class I areas in MT).

2) Are there any unclassified areas in North Dakota?

The state is divided into 2 PM-10 unclassifiable areas: the "Metropolitan Fargo-Moorhead area" (Air Quality Control Region (AQCR) 130) and the "Rest of State" area (AQCR 172). These same two areas are designated attainment for SO2 and for NO2. See 40 CFR 81.335 for more details on North Dakota's designations.

3) How do you redesignate an area to a Class I area from a Class II area?

The specific requirements are outlined in section 164 of the Clean Air Act. In general, a satisfactory description and analysis of the health, environmental, economic, social and energy effects of the proposed redesignation is prepared and made available to the public for comment. This isn't really something I know much about ... for more details I'd have to direct you to someone else.

4) What are the listed categories of industries that are required to file a PSD permit?

If, by listed categories, you mean the specific source categories that are subject to PSD requirements if they have a potential to emit 100 tons per year or more of any criteria pollutant, you can find that list in 40 CFR 51.166(b)(1)(i)(a).

5) What are the baseline numbers for North Dakota for regulated pollutants?

Unfortunately, there is no set baseline "number" for each pollutant. The baseline concentration varies across any given baseline area. So what we have are emission inventories for the base year which can be used in a model to predict baseline concentrations at various receptors across a baseline area, but there really isn't anything more specific than that.

6) Where are the baseline areas for the different pollutants in North Dakota?

The baseline areas are the SO2, NO2 and PM-10 areas designated as attainment or unclassifiable in 40 CFR 81.335. See answer to question 2.

7) Is baseline set for North Dakota already?

Yes. The minor source baseline date has been triggered for all 3 pollutants with PSD increments (PM-10, SO2 and NO2). The minor source baseline date, for each individual pollutant, is set by the first complete PSD permit application in the baseline area that emits PM-10, SO2 and/or NO2 in significant amounts (see 40 CFR 51.166(b)(23) for definition of significant). For SO2, the minor source baseline date was triggered in 1977 for the "Rest of State" baseline area.

a. If not, why?

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"Scott Fry, Organizer" <fry@btigate.com>
01/09/02 03:04 PM

To: Megan Williams/P2/R8/USEPA/US@EPA
cc:
Subject: Questions regarding PSD in North Dakota

Megan,

Here are the questions that arose as I have been studying up on PSD. They are attached and below. Now you will see just marvelously up on PSD Dakota Resource Council is, or (more likely) just how little we know about the issue. Thanks for your time and help on this,

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Questions to ask Megan from study of the Teacher's Manual

1) What exactly is being determined with PSD in North Dakota?

   a. Are we figuring out what the baseline is for the state to determine the increment?

      i. Shouldn't that have been done already?

      ii. Shouldn't we have baseline figured out already?

   b. Are we trying to figure out the remainder of the increment to allow for new plants to be built?

      i. If so, shouldn't we already have the baseline figured out and the increment as well?

   c. Or, are we looking at an already existing violation of PSD allowed by previous administrations?

2) Are there any unclassified areas in North Dakota?

3) How do you redesignate an area to a Class I area from a Class II area?

4) What are the listed categories of industries that are required to file a PSD permit?

5) What are the baseline numbers for North Dakota for regulated pollutants?

6) Where are the baseline areas for the different pollutants in North Dakota?

7) Is baseline set for North Dakota already?

   a. If not, why?

Q & A for Megan Williams about PSD.